U.S. DEPARTMENT OF COMMERCE
National Technical Information Service
PB-286 073

Committee on the Challenges of Modern Society. Advanced Health Care Pilot Study

NATO Committee on the Challenges of Modern Society, Brussels (Belgium)

Apr 76

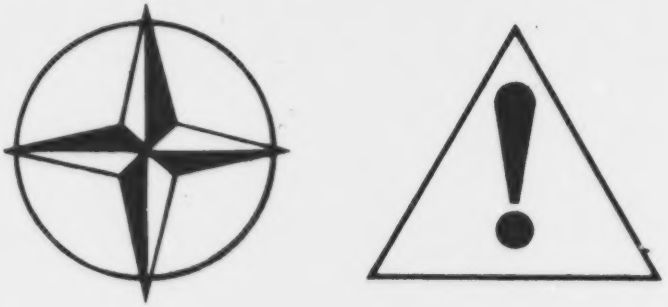
PB 286 073

COMMITTEE ON THE CHALLENGES OF MODERN SOCIETY

Advanced Health Care Pilot Study

Final Report

April 1976



CCMS Report No. 43

Avril 1976

Rapport Final

Étude-Pilote sur les Services Avancées de Santé

COMITE SUR DES DEFIS DE LA SOCIETE MODERNE

REPRODUCED BY
NATIONAL TECHNICAL
INFORMATION SERVICE
U. S. DEPARTMENT OF COMMERCE
SPRINGFIELD, VA. 22161

TECHNICAL REPORT DATA *(Please read Instructions on the reverse before completing)*		
1. REPORT NO. NATO/CCMS 43	2.	3. RECIPIENT'S ACCESSION NO. PB286073
4. TITLE AND SUBTITLE Committee on the Challenges of Modern Society Advanced Health Care Pilot Study Final Report		5. REPORT DATE April 1976 6. PERFORMING ORGANIZATION CODE
7. AUTHOR(S)		8. PERFORMING ORGANIZATION REPORT NO.
9. PERFORMING ORGANIZATION NAME AND ADDRESS Same as box 12		10. PROGRAM ELEMENT NO. 11. CONTRACT/GRANT NO.
12. SPONSORING AGENCY NAME AND ADDRESS North Atlantic Treaty Organization Committee on the Challenges of Modern Society		13. TYPE OF REPORT AND PERIOD COVERED 14. SPONSORING AGENCY CODE
15. SUPPLEMENTARY NOTES		

16. ABSTRACT

In 1971, the North Atlantic Council approved a pilot study adopted by the Committee on the Challenges of Modern Society to investigate various aspects of advanced health care in the participating countries. Four areas of primary interest were identified for intensive study: 1) organized ambulatory health services, led by the Federal Republic of Germany; 2) systematic assessment of health services led by Canada; 3) automated clinical laboratories led by UK; and 4) emergency medical services, an outgrowth of the Italian-led EMS project of the Road Safety Pilot Study, led under advanced health care by Portugal, Italy, and the United States.

17. KEY WORDS AND DOCUMENT ANALYSIS		
a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
18. DISTRIBUTION STATEMENT	19. SECURITY CLASS *(This Report)*	21. NO. OF PAGES 77
	20. SECURITY CLASS *(This page)*	22. PRICE A05-A01

EPA Form 2220-1 (9-73)

Committee on the Challenges of
Modern Society

Comité sur des Défis de la
Société Moderne

Advanced Health Care Pilot Study

Etude-Pilote sur les Services Avancées de Santé

Final Report

Rapport Final

April, 1976

Avril, 1976

CONTENTS

Table de Matières

I.	Background	Généralités
II.	Resolutions	Résolutions
III.	Report of Project on Organized Ambulatory Health Services	Projet relatif aux Services Organisés de Consultations Médicales Externes (Traitment Ambulatoire)
IV.	Report of the Automated Clinical Laboratories Project (Plus Appendix - English Only)	Projet des Laboratoires Cliniques Automatisés
V.	Report on Emergency Medical Services	Projet de Services Médicaux de Secours
VI.	Report on Systematic Assessment of Health Services	Rapport sur l' Evaluation Systematique des Services de Santé

I.C

COMMITTEE ON THE CHALLENGES OF MODERN SOCIETY
ADVANCED HEALTH CARE
(FINAL REPORT)

Background

In 1971, the North Atlantic Council approved a pilot study adopted by the Committee on the Challenges of Modern Society to investigate various aspects of advanced health care in the participating countries. Four areas of primary interest were identified for intensive study: 1) organized ambulatory health services, led by the Federal Republic of Germany; 2) systematic assessment of health services led by Canada; 3) automated clinical laboratories led by UK; and 4) emergency medical services, an outgrowth of the Italian-led EMS project of the Road Safety Pilot Study, led under advanced health care by Portugal, Italy, and the United States. Dr. Roger O. Egeberg of the United States Department of Health, Education, and Welfare served as overall Pilot Study Director.

Since 1971, in a series of experts meetings, site visits, and study tours, participating national experts from fourteen NATO countries, Spain, and the International Red Cross, have compiled data on existing facilities and methodology, and identified topics on which work remains to be done in the future. The reports of each of the four projects submitted to the Committee outline in detail the methods utilized and conslusions reached in each area; recommendations in each field are herewith included for acceptance by the Committee. Work carried out in the four projects has, in addition, identified several general areas for future collaboration.

II.

COMMITTEE ON THE CHALLENGES OF MODERN SOCIETY
ADVANCED HEALTH CARE
(FINAL REPORT)

Resolutions

To expand existing knowledge, to increase the efficiency with which today's methods are utilized, and to promote an exchange of information among interested persons within both the national and international health communities, the Nations of the Alliance resolve:

1. To encourage continued international cooperation in the field of advanced health care, including, but not limited to, exchange of data on types of equipment and training employed in the various countries; exchange of personnel, so that they may familiarize themselves with problems and methodology outside their own countries, and sponsorship of international conferences, privately and, where appropriate, under government auspices, to maintain a focus on the urgency of health care problems and the availability to interested persons of up-to-date information on the state of the art.

2. To develop, wherever possible common methodology and terminology in the field of advanced health care. This may include, for example, definition of a common vocabulary, recommendation of minimal training requirements for positions with similar titles and responsibilities, encouragement of equipment standardization, and promotion of internationally-recognized numbers and symbols.

3. To consider creation of appropriate advanced health care programs and facilities during the planning stage of and in conjunction with, for example, urban development, industrial expansion, and construction of highways and other means of transportation, to insure that the health needs of the community are recognized from the inception of such projects.

4. To increase efforts at effective liaison with local and regional authorities, to insure that technical developments and knowledge gathered at the national and international levels are brought to the attention of these authorities, and that they are given every possible encouragement to implement fully such developments to the benefit of the everyday life of their constituents.

5. To support private and public efforts in the field of public education, so that both children and adults will be aware of the facilities available to them and of ways to take full advantage of the advanced health care facilities in their communities.

6. To encourage greater collaboration between national and international, private and governmental groups working in advanced health care fields with the appropriate international health organizations, so that the techniques and expertise developed and exchanged by such groups may be freely available to all countries in the world community.

North Atlantic Treaty Organization
Committee on the Challenges of Modern Society
Final Report
Project on Organized Ambulatory Health Service

I. Origin of Project

For a number of years the member nations of the North Atlantic Treaty Organization have been conducting studies and developmental activities on social, economic, and technological problems of general concern. These activities are organized under the Committee on the Challenges of Modern Society of NATO. In 1971 the Committee accepted a proposal by the United States that the subject of the improvement of health services be added to the Committee's agenda, and that interested member nations undertake projects within this broad and complex area.

A project which would identify advanced developments in ambulatory health services was among those which were first proposed in 1971 for CCMS consideration. The development and final selection of a project on "organized ambulatory health services" was achieved during several meetings of representatives of interested countries. These steps were as follows:

1. On 15-18 Feburary 1972, an experts-level meeting at NATO headquarters in Brussels considered the features of a new ambulatory health care delivery system which was being tested at the Oakland, California, clinic of the Kaiser Foundation Plan, San Francisco, California, U.S.A.[1] During this meeting the Federal Republic of West Germany accepted Chairmanship of the tentatively - defined project. Staatssekretar a.D. v. Manger-Koenig, Medizinischer Sonderberater des Bundesministers fur Jugend, Familie und Gesundheit, FRG, is chairman.[2] Besides

---

[1] General concepts and operational details of this system may be found in the Scientific American, Vol. 222, No. 4, April 1970. More technical data on the system were subsequently presented to project members at Oakland, October, 1972. (Attachment 2).

[2] Individuals who have represented participating nations are in Attachment 1 identified.

the FRG, Canada, Italy, and the U.S.A. indicated intention to participate in the project. It was also understood that there would be a general conference in San Francisco, U.S.A., at which all CCMS projects concerned with health services would further develop their plans.

2. The first working session of the project was held September 7-8, 1972 at NATO headquarters, by representatives of the four participating countries. An outline of the technical elements of organized ambulatory health services (patterned on the Kaiser model which had been discussed earlier) which might be found in various countries was prepared, and a conceptual definition following this pattern was written. (Attachments 3 and 4).

3. At San Francisco general conference in October 1972 members of this project (as well as members of other health services projects) visited the experimental Kaiser ambulatory health care delivery system at the Oakland clinic, saw patients being treated, and participated in a detailed discussion of the system. During this conference France, Greece, and Portugal joined the project. The members agreed to hold the next working session of the project in Europe, to visit and discuss selected sites where some major aspect or aspects of organized ambulatory health services were in operation.

4. April 16-27, 1973, representatives of Canada, FRG, France, and the U.S.A. visited sites in London, Northampton, and Daventry, England; Edinburgh and Glasgow, Scotland; Florence, Italy; Nancy, France; and Brussels, Belgium. A representative of Italy was present at the Florence site visit and representatives of Belgium and Italy were present at the Brussels visit. Extensive discussions were held with representatives of the respective national ministries of health in London, Edinburgh, and Brussels. Following the site visits, a working session to summarize experience and plan next activities was held in Brussels.

5. February 18-22, 1974, representatives of Belgium, Canada, FRG, France, and U.S.A. held extensive discussions with representatives of the Bundesministerium fur Jugend, Familie und Gesundheit in Bonn-Bad Godesberg, and visited health services

sites in the Cologne area and Wiesbaden, FRG. Tentative conclusions based on the work of the project to date and recommendations for future project activities were agreed upon.

II. Change of Project Scope

The scope of the project necessarily evolved from one with a narrow focus on a "model" of a highly developed and unique program (Kaiser in Oakland, U.S.A.) to a project with a broader view of the roles which various institutions and organizations play in providing ambulatory health care of individuals and to populations. This expansion of the field with which the project became concerned was essential for several reasons. While forces in several of the countries in which observations were made (Canada, FRG, England and Scotland, U.S.A.) may be moving to create a larger number of more highly organized institutions for ambulatory health care, there are there are still too few such institutions in operation to permit comparison and meaningful analysis. Secondly, the intensive methods of comparison and analysis of these very complex institutions can hardly be carried out by brief site visits. A continuing collection of data which can be subjected to research methods is more appropriate for these purposes. Finally, the observations made so far in the project show that the development and effective functioning of large, organized ambulatory health care institutions probably depend upon regional and national arrangements for planning, organizing, and financing ambulatory and inpatient services. The reports on some of the countries visited by the project (England, Scotland, FRG) accordingly reflect general aspects of the entire structure of health services in these respective countries. (Attachments 5, 6 and 7).

As a consequence of the foregoing observations, the findings and recommendations of this project on organized ambulatory health services may be viewed as a prospectus for additional international studies and conferences on this subject, as well as on the larger-scale subjects of health services planning and financing on a national basis. This larger frame of reference is, of course, of the greatest importance to the questions which face all nations: (a) costs of health and related services; (b) the allocation of physician manpower between general care practice (ambulatory health services) and special diagnostic and therapeutic practice; and (c) the geographic distribution of organized health services in relation to the definite needs of the general population.

III. Summary of Project Observations

In order to organize and present a summary of the wide range of observations encompassed by the project in its several working sessions, an ad hoc classification will be employed, as follows:

(A) Examples of organized ambulatory health services; (B) Special components of organized ambulatory health services, with special reference to health status screening and diagnostic testing; and (C) National policies and administrative approaches to development of large-scale organized ambulatory health services programs.

A. Examples of Organized Services

Four examples of organized ambulatory health services were seen by the project, although these particular programs are by no means the only representatives of such programs which exist in the countries participating in the project. The following is only a summary of these programs; more information is presented on each program in the Attachments to this report.

1. Kaiser Experimental Program, Oakland, California, U.S.A.

This private non-governmental program has been conducted since 1970 as a designed experiment to the extent that such an institution can be controlled by a scientific design. The main elements of the program are (a) a highly-automated health screening system which is used to health status screening of patients who are members of the Kaiser health care program and for diagnostic testing of patients who come to the Oakland clinic for ambulatory care; (b) nurse practitioners who (under supervision of physicians) diagnose the conditions of patients in the ambulatory health services program; (c) health maintenance clinics staffed by nurse practitioners (following chronic disease protocols developed by physicians) in which patients with medically stable chronic conditions are seen periodically; and (d) referral of patients to hospital when they are too sick to be cared for in the health maintenance clinics by nurse practitioners. (Attachment 2).

2. Woodside Health Centre, Glasgow, Scotland

Woodside Health Centre is an example of the policy of the Scottish National Health Service to promote growth of planned ambulatory health services centres as a basic element of the future structure of health services in Scotland. The Centre was established in a slum clearance area of Glasgow with funds from the central government (as of April 1973) and has been serving about 45,000 people since 1971. Eight medical groups, including 21 full time general practitioners, are based in the Centre. Before the Centre was built these physicians had solo office practices in the same geographic

area. The Centre operates two organized programs to screen children and old people and to refer individuals to appropriate diagnostic and treatment services in the Centre or in the hospital which takes patients from the Centre. Diagnostic resources of the Centre include x-ray for routine chest films, electrocardiography, and a simple clinical chemistry laboratory.

The medical staff of the Centre works with specialized nurses including seven nurses working out of the Centre who make home visits to patients who receive care from the Centre, two nurses specialized in geriatric care and six other nurses working out of offices located in the health services district.

Referrals of patients can be made to specialists in the departments of the backup 1,000 bed general hospital or to consultants from the general hospital who hold special clinics in the Centre. These consultants now cover internal medicine, general surgery, obstetrics and gynecology, pediatrics, vascular surgery, dermatology, psychiatry, and geriatrics. Four general practitioners representing the Centre and four of the hospital-based consultants meet half-yearly to review their medical relationships, and there is also a nursing committee which reviews physician-nurse relationships (Attachment 5).

3. Health Centre, Daventry, England

Daventry Health Centre is also an example of the policy of the National Health Service (England and Wales) to promote ambulatory health services centres. The Daventry Centre is located in a small urban community, serving a population of about 20,000 people living within a 6 - 7 mile radius of the Centre. There are nine general practitioners, organized in one group of five, and another group of four, all of whom practiced in the Daventry area before the Centre was created. The facilities for the Centre were planned by a group representing the physicians and the County health authority.

The medical staff is supported by five nurses which see patients in their homes. One nurse works full-time in the treatment room of the Centre, and each of the two medical groups has two health visitors. In addition there are two District nurses who see patients of the respective groups. Each medical group has two specially assigned secretaries,

in addition to a central reception, telephone, and secretarial staff. There are no x-ray or clinical laboratory facilities in the Centre. Specimens for laboratory analysis are sent to the backup general hospital. However, dental services for children and pregnant women, and speech therapy services supported by the local government authority are located in the Centre.

4. Cesar de Paepe Clinic, Brussels, Belgium

The Cesar de Paepe Clinic is the largest ambulatory health services clinic in Belgium. It is part of the health services program of the Socialist Party of Belgium, which includes hospital care as well as ambulatory care. The Cesar de Paepe Clinic provides free service to members of the Socialist Party program and charges fees to non-members, which may be reimbursed by the national social security system. There are about 750,000 individuals enrolled in the health program of which the Clinic is a part. Several other ambulatory clinics also serve the program, although there are no geographic boundaries defining catchment areas.

The Clinic is located in its own building with several floors and space designed for all purposes from patient reception and waiting areas for each major service to special treatment areas and laboratories. About 1,000 patients are seen daily between 8-12 a.m. and 2-6 p.m., in addition to individuals who come in solely for laboratory tests or x-ray. At other times patients are seen at one of two hospitals which are part of the Socialist Party Health program.

The program of the Clinic seems to be organized along lines of the major medical specialties, there being no general practitioners as such on the Clinic staff. However, all medical specialties except geriatrics are represented,with about 100 physicians some of whom are part-time making the full-time equivalent of about 75 physicians. Each medical department has a medical chief. All physicians are on salary.

B. Special Components of Services

The project was able to inspect four examples of major screening programs designed to examine large numbers of people for disease detection and measurement of health status. These programs are in Oakland, California, U.S.A. (the Kaiser program),

Florence, Italy, Nancy, France, and Wiesbaden, FRG. Screening programs such as these may be considered as technical elements of organized ambulatory health services program in a single geographic location (as is the case in the Kaiser program), or as a physically independent component of an ambulatory health services program in which periodic screening and diagnostic testing are conducted in one institution, and the follow-up treatment (if needed) is provided in another location by another clinical institution or by a number of individual medical practitioners in their own offices.

1. Kaiser Program, San Francisco and Oakland, California, U.S.A.

   The screening element of the Kaiser health services program (called multiphasic health testing) was begun in 1963, several years earlier than the experimental ambulatory health services program described above. Automated multiphasic health testing is carried out as part of the Kaiser health services program at two locations, San Francisco and Oakland, in California. This service is available as an annual health status checkup to all members of the Kaiser program who live in the vicinity of these two cities. It should be specially noted that the automated multiphasic health testing facility in Oakland is an integral part of the experimental ambulatory health services program; but the health testing facility also gives health checkups to individuals who do not use the full ambulatory care program.

2. Center for Preventive Medicine, Vandoeuvre-les-Nancy, France

   The Centre de Medecine Preventive is a private organization established in 1970, for the purposes of determining the benefits of periodic health screening of populations and identifying the elements of the population which are high users of health services. The screening program is financed largely by the national social security system on the assumption that some findings on costs and benefits of screening can be made within a five-year period.

   About 20,000 persons per year are examined at the Centre, selected according to certain criteria from a population of about one million in the Meurthe-Moselle region. Individuals selected for the program must be covered by the social security system and must meet one or more of three other criteria - a high user of health services resulting in high expenditures by the social security system, workers in one of two factories

in Nancy (an iron works and a chemical plant) where there are thought to be high health risks, and members of large families.

When an individual is identified under these criteria the entire family is invited on a voluntary basis to be tested. Family groups are taken as a unit of testing on the assumption that there are sociological conditions within the family and environmental conditions affecting the family which are related to specific symptoms and diseases.

Families which are included in the program come to the Centre as a group and proceed through the program during an entire day. An extensive questionnaire is completed by or for each family member and each member is then given a series of clinical tests. It is interesting to note that the basic set of clinical tests is adapted from those used in the Kaiser multiphasic health test, and the organization and design of equipment and procedures for the Centre's clinical tests are based on consultation provided by the developers of the Kaiser program. A common set of tests is administered to all individuals, an additional set of tests is administered according to age group, and specialized examinations are given to individuals in which abnormalities are indicated by the other tests.

All test results are sent to the individual's or the family's doctor, and negative results are reported to the individual or family. The Centre obtains only limited information on actions taken to correct abnormalities indicated by the testing program, although the Centre is attempting to get follow-up reports from hospitals on individuals who have been screened.

The Centre is located in a new, specially-designed building on the outskirts of Nancy. It has a medical staff of five full-time and about 30 part-time physicians, plus technical staff, including a statistical staff for data collection and analysis.

3. Center for Social Diseases and Preventive Medicine, Province of Florence, Italy

This Center was established by the Province of Florence in 1964 as a free diagnostic and health status screening service for people in the City and Province of Florence. Activities are concentrated on early detection of high incidence diseases such as tumors, diabetes and related metabolic conditions, atherosclerosis and ischaemic heart disease, and occupational

diseases. While the Center is open to both men and women and provides a free multiphasic health testing, as well as testing for specific diseases, the greatest use of the programs is reported to be by women who come for cytological examinations for cervical cancer and mammographies. Between 1964 and early 1973 the Center reported making about 255,000 cervical examinations, 60,000 mammographies, and 30,000 multiphasic health tests. There is also a program for diagnosis of congenital and early childhood heart disease.

Examinations of adults are also made by mobile units working in areas of the Province, and the Center is a base for screening and health education for about 80,000 children in the schools of 49 communes of the Province. School examinations are carried out in schools by physicians and nurses, with special diagnosis performed in the Center.

4. German Diagnostic Clinic, Wiesbaden, FRG

The German Diagnostic Clinic is a private center, opened in 1970, and originally intended primarily for health status testing of asymptomatic persons and secondarily for diagnostic workup of patients with specific complaints. The Clinic is housed in its own building and is specifically designed for reception, highly specialized diagnosis, and referral of large numbers of patients from a large geographic area. While the Clinic was conceived as a center for health status testing and screening of persons who would voluntarily seek this service, most of the Clinic's activities are now devoted to the specialized diagnosis of patients who have been referred by their physicians. About 80-85 percent of individuals seen are in this category.

As a result in the shift from a patient-referred health testing program to a physician-referred diagnostic service, the Clinic is primarily a diagnostic resource for panel doctors in the State of Hesse, and also receives patients referred by physicians from other parts of Germany and Europe. In 1973 about 13,000 patients were seen by the Clinic, of whom about 52 percent are covered by sick funds. The Clinic has a medical staff of 40 full-time physicians on salary, plus supporting professional and technical staff. The State of Hesse and the Hessian association of penel doctors provide some financial support to the Clinic.

C. Roles of National Policy and Organization

Public policy and the organizational arrangements created or fostered by public policy may determine in the long run how ambulatory

health services are to be organized and delivered to individuals and populations. Such policies and arrangements may be made largely through governmental processes (as in England and Wales, and Scotland) or through a combination of public legislation and self-governing activities of health insurance and professional groups (as in the Federal Republic of Germany and the United States of America.) The project was able to observe and discuss examples of these two methods of policy making.

1. England and Wales, and Scotland

Recent changes in laws and policies in England and Wales, and in Scotland are so similar as to permit a common presentation, with exceptions as noted. A national health service was inaugurated in England and Wales and in Scotland in 1948, providing for a national program for organizing and financing both ambulatory and hospital services. This program was revised in 1974 for all three countries along common lines. (Attachments 5 and 6).

The new legislation which came into effect in these countries in 1974 provides for regional health boards (14 for England and Wales and 15 for Scotland) which will be responsible for planning and managing all branches of health services - ambulatory care, hospital care, and home health and social services. In Scotland larger regions will be divided into districts, and in England and Wales regions will be divided into health services areas and larger areas will be divided into health services districts. In England and Wales the geographic boundaries of health services areas will be coterminous with the geographic boundaries of local governments to promote coordination of health services with housing and other social service of local governments.

In England and Wales health services districts will be designed to serve populations of 200,000 to 300,000 which are large enough to support a general hospital with medical specialists and to encourage good coordination of general practitioners ambulatory care with hospital specialists. It is hoped that future health services within districts will be planned to meet the needs of health care groups such as the elderly, expectant and new mothers, children, the mentally ill and mentally handicapped, and groups which have other common chronic health problems. Standards of care for such groups are to be defined in terms of the quantity and quality of services required.

The policy in Scotland is to promote the future organization of ambulatory care in health centres, especially in urban renewal

(slum clearance) areas and in new towns, and in areas where the general practitioner/population ratio is in excess of 1:10,000. A design guide for health centres is now available, from the Scottish Home and Health Department with the largest centres designed to serve populations of 50,000-60,000. The goal in Scotland is to serve about four-fifths of the ambulatory needs of the population through health centres by the mid-1980's (Attachment 5).

2. Federal Republic of Germany

Official policies and organizational provisions for ambulatory health services in the Federal Republic of Germany are particularly interesting, in comparison to other countries visited by the project. The system in FRG may be seen as a half-way position between countries which have national health services based largely on definitive national legislation and uniform geographic organization of administrative responsibilities, and countries in which policies and organization for health services are the outcome of a variety of interactions among the medical profession and various national, regional, and local legislative and administrative actions.

In FRG by law only a small number of teaching hospitals may provide care to ambulatory patients. All other ambulatory care is provided by physicians (panel doctors) in their offices or clinics. Almost all hospital care is provided by full-time salaried physicians based in hospitals. There are two limited exceptions. Senior hospital physicians (about 17%) treat some patients on an ambulatory basis, and there is a movement to increase the number of panel doctors to treat hospitalized patients.

Originating as early as 1883, ambulatory and hospital services are financed through a system of sick funds authorized by law of the Federal Republic which cover about 95 percent of the population. All sick funds are private self-governing associations organized under Federal law, and membership in funds is largely related to place or type of employment.

Panel doctors who deliver ambulatory health services are admitted to practice as a member of one of 18 regional associations of panel doctors perform several essential professional and administrative functions. They contract on behalf of their members with sick funds within their respective territories to provide ambulatory health services to members of the sick funds. Associations are responsible for the quality of medical

care delivered by their physician members, and they have issued clinical guidelines for certain types of medical services, and have established review and grievance procedures. The regional associations also reimburse doctors for services by billing the sick funds and making payments to doctors.

In FRG there is a moderate movement along panel doctors to form practice groups, and/or to share diagnostic equipment or diagnostic services of a central laboratory. This movement is still limited. Out of about 25,300 panel doctors in general practice, only about 3,000 were practicing in 650 groups in 1972. Between 1972 and 1973 about 300 additional doctors became members of practice groups. Most groups consist of five or fewer doctors. In addition to the formation of groups among panel doctors, there has been discussion of the establishment of new organizations for ambulatory care, such as polyclinics attached to or affiliated with hospitals or medical-technical centers. (Attachment 7).

IV. Proposed Conclusions, and Recommendations

A. Conclusions

The information assembled during the pilot study shows that national health systems, regardless of identical health policy objectives, are very differently structured and, in addition, are based on varying principles and schemes for the social welfare of the citizen in the Western World. The recognition of this is of particular value in recommending continuing international action in the project's area.

Even though, due to differences in national systems, it is impossible to make generally valid recommendations, much can be learned from a comparison of the individual systems which can be utilized in planning and improving organized ambulatory health services within each participating country. The Project Group considers the adoption and the effective implementation of such recommendations an important task of value to all member countries. The recommendations are restricted to very specific areas and selected problems, the co-operation in which should be left to the discretion of interested member states.

The Project Group would like to draw the attention of all nations to some basic principles and conclusions which, in their opinion, apply to all systems and which resulted from the work of the Pilot Study.

1. Careful and comprehensive planning of all health care facilities is required not only in view of the rising costs of health services and their steadily increasing share of each nation's gross national product, but also with regard to the right of the citizen to equality of services - regardless of his social status and place of residence - and all this against a background of growing demands upon medical and social services. Only if the planning prerequested is complied with can an optimum supply of health services be ensured.

2. Health care planning should be closely coordinated with the overall planning of the country concerned and, in particular, with social planning, Planning should take into consideration sufficiently large supply zones as planning units, and should be linked to the national administrative structure which, in some countries, is also being reorganized.

3. At present, the provision of health care in rural areas, in the outskirts of towns, and at certain times (during the night, weekend, holiday season) constitutes, in many countries, an actually urgent problem, the solution of which high priority should be accorded by responsible national bodies.

4. In the interest of satisfactory continuity of care for the individual citizen, a stronger linkage with and mutual interlocking of the individual system components of health care - ambulatory care, hospital care and public health services - are indispensable.

5. The changing socio-biological structure in the member countries, as well as the modified morbidity pattern with more chronic and degenerative diseases and with an increasing proportion of mental disorders also necessitate the foregoing measures. Some countries have recently developed the components of health care into integrated systems of comprehensive health care. Other countries will seriously have to examine this problem. In this context, the development and optimization of ambulatory health care, new forms of its organization and pertinent new methods will be of decisive importance. Also the essential tasks of health care - preventive, curative and rehabilitative tasks - require better balancing and integration with each other. For this purpose, in priority planning more importance should be assigned to the tasks of prevention and rehabilitation..

6. Automation, mechanization and computerization of medicine should under no circumstances lead to neglect of the increasing need of the patient in our society for human contact and partnership with his physician and with the other health professions. Therefore, great importance has to be attached to the general practitioner, his possibilities of work and his qualification. It will be necessary to strengthen his functions and provide him access to modern medico-technological progress without however placing additional burdens upon him. Furthermore, his education and continued training need to be improved.

7. The gap between increasing demands upon health services and the fact of the shortage of professional personnel, is becoming more serious and will also categorically enforce rationalization. To enable the general practitioner, the specialist, and the physician in the hospital and in the public health service to concentrate more upon making their own decisions which would correspond to their training and their experience, several countries are investigating whether the role of the physician on the one side and that of the other health professions on the other side should be newly defined. The transfer of more technical tasks and services, which have hitherto been reserved to the physician, to other professions either under medical responsibility or by expanding the scope of responsibility of the other or new professions is being discussed. This implies the further development of training curricula and examination of requirements for the general level of education.

8. All discussions dealing with organization, tasks and methods of health care must be oriented towards the citizen and patient. The citizen as client and as consumer of health services must play a more active part when matters of planning, implementation, and evaluation of health care are involved. First, he needs to be better informed. An understanding of the public regarding the objectives and problems, the functions and methods is an indispensable prerequisite for any further development of health services. Only through an active partnership with the patient will the health services and the individual physician be able to carry out their tasks in an efficient manner. This will be the starting point of health information and health education.

B. Recommendations

The Project Group recommends continuing international cooperation on organized ambulatory health services, particularly in the following problem areas:

1. Further development of the organizational structure and of the tasks and methods of ambulatory health care.

   Staff and Financing Problems.

   Efficiency control.

2. Application of advanced medical technology for optimization of ambulatory care.

   Organized laboratory services, medico-technological centers.

   Development and evaluation of standard test programs for mass screening.

3. New distribution of tasks among the health professions.

   New professional patterns and rearrangement of training curricula.

   New differentiation of responsibilities between physicians and other health professionals.

4. Rationalization of ambulatory care by redrafting anamnesis questionnaires and medical records.

It is recommended that the appropriate National Ministries of Health:

1. Establish an information exchange program designed to facilitate the timely dissemination of current information on initiatives regarding organized ambulatory health services within the participating nations by:

   (a) Appointing a liaison officer in each Ministry of Health to be responsible for assembling and preparing materials required for the effective functioning of the information exchange program.

(b) Holding a biannual meeting of representatives of participating countries, with an invitation to WHO, OECD, and the Council of Europe to participate, to report and analyze on a common conceptual basis new developments in health services legislation and administration. Such meeting should be hosted among the participating countries on a rotating basis.

(c) Designating on a rotating basis through selection at the biannual meetings a Coordinator from among the permanent liaison officers. Such person would oversee and facilitate the dissemination of official documents and explanations of new federal/national and state/regional legislation and administrative directives on planning, financing, organization, and administration of health services, research findings, program descriptions, and statistical evaluations. The Coordinator would facilitate contacts between participating ministries.

2. Mutually examine the effectiveness and applicability of all existing programs relevant to ambulatory health services to develop a set of guidelines for the optimum operation and administration of ambulatory health services programs.

3. Initiate programs to educate, train, inform, and increase the awareness of state/regional government officials with respect to organized ambulatory health services programs.

4. Initiate programs to educate and increase the awareness of the general public of the benefits of organized ambulatory health services programs.

5. Work to establish national programs to ~~be~~ ensure full consideration of organized ambulatory health services requirements in the planning of new urban developments.

IV.

COMMITTEE ON THE CHALLENGES OF MODERN SOCIETY (CCMS)

ADVANCED HEALTH CARE PILOT STUDY

REPORT OF THE

AUTOMATED CLINICAL LABORATORIES PROJECT

TABLE OF CONTENTS

Summary Report on the Pilot Study:

. Origin and Purpose.....

. Scope.....

. List of Working Sessions.....

. General Conclusions.....

. Recommendations for International Cooperation.....

. Follow-up Activities.....

Appendix A - Standard Reference Method.....(English only)

Appendix B - Library Searches.....(English only)

COMMITTEE ON THE CHALLENGES OF MODERN SOCIETY (CCMS)

Automated Clinical Laboratories Project

I. Origin and Purpose of the Project

This study is one of four subprojects contained in the "Advanced Health Care Delivery Systems" pilot study approved on December 15, 1972, by the North Atlantic Council as part of the CCMS work program.

The study of automated clinical laboratories is important because the excellence of medical practice in the future will depend, to an increaing degree, on the development of new and improved laboratory measurements, instruments and systems.

Many of the problems encountered in the development of automated clinical laboratories are shared by all scientists working in that field. Therefore, it was recognized that scientists would derive particular value from international collaboration, especially in the following areas:

1) designing improved automated methods for accurate, sensitive, rapid and reliable analyses;
2) designing and testing a suitable computer system for monitoring the automated system, to control quality and report results in useful formats;
3) identifying the profile of particular validity in the diagnosis and monitoring of diseases and of therapy;

4) studying cost-effectiveness for deploying automated clinical laboratory equipment, i.e., issues of centralization, regionalization, and sharing of services among several institutions.

II. The Scope of Activities

In February, 1972, at a meeting in Brussels, the Working Group on Automation of Clinical Laboratories (France, FRG, Canada, UK, Netherlands, Portugal, Italy, USA) established goals and guidelines for future activities. The UK agreed to serve as lead country. It was decided that the scope of the project would include compilations of information on laboratory services in each participating country. Such information would include a description of the present organizational structures and plans for the future. Also, the scientists were to consider, in relation to techniques, organization, utility and cost, how best the automation of clinical laboratories could be developed, and to consider specific proposals for cooperative action.

III. Project Meetings

Meeting held at London, United Kingdom, September 25-26, 1972

Prior to the London meeting, each of the participating nations was requested to submit a summary of the status of its laboratory services and plans for future development. As a result of the London discussions, participants agreed to focus on:

1) The pattern of provision of general medical services,
2) The organization of clinical laboratory services in relation to the various types of provisions of medical service,
3) the extent to which mechanized and automated procedures and automated data handling contribute to the function of clinical laboratory services,
4) the relation of other scientific services to clinical laboratories,
5) the application of management control and information techniques to clinical laboratory service,
6) areas in which research into the organization and development of clinical laboratory services is currently being undertaken.

Other topics suggested for further discussion were:

1) development of improved methods of patient and sample identification and reporting and transmitting laboratory test results,
2) development of automated analytical equipment including consideration of the best end-point detecting system, (e.g., colorimetry, spectrophotometry, flame photometry, atomic absorption, fluorimetry, potentiometry, gas liquid chromatography),
3) development of entirely new analytical methods for automated systems,

4) development of computer software for laboratory data processing, control of analytical methods, and identification of abnormal results.
5) definition of normal values by age, sex, race, geography, etc.
6) the role of "pre-packaged" analytical systems for clinical laboratories,
7) determination of the extent to which automated clinical laboratories can be centralized; including matters of unit cost, manpower requirements, and acceptable delay in reporting results,
8) international collaboration in the development and use of standard reference materials and quality control systems,
9) the development of appropriate sets of profile tests suitable for the early detection of the various disease processes.

Working Session -- San Francisco, California, October 16-19,1972

At San Francisco, in addition to presentations on "the present status of laboratory services", the United States Center for Disease Control described the U.S. National Proficiency Testing Program, and one of the largest exhibitions of laboratory equipment (both automated and non-automated) ever assembled for public viewing was displayed.

Five areas of activity were identified, to be the subject of the next meeting at Como:

1) Guidelines for the manufacture of Kits and Reagents.

2) Positive patient and sample identity.

3) Bibliography of computers and automation.

4) The information content of laboratory reports.

5) Standard reference materials and methods.

Working session -- Como, Italy, May 4-6, 1973

The Como meeting was attended by seven NATO nations: Canada, Denmark, the Federal Republic of Germany, Italy, Portugal, the United Kingdom, and the United States. The meeting was sponsored by the health authorities of the Lombardia District, Italy. Participants presented excellent papers and had lively discussions on the five topics listed above.

Working Session -- Bethesda, Maryland, USA, November 12-15,1973

The fourth and final session of this working group was convened at the Fogarty International Center on the Campus of the National Institute of Health, in Bethesda, Maryland.

Delegates discussed four priority topics on which recommendations were drafted:

a) The establishment of accurate standard reference methods and materials to validate the results of new automatic apparati and methods.

b) Library searches with particular reference to the maintanance of a continuously up-dated bibliography of automation in the clinical laboratory.

c) An internationally agreed code of practice to regulate the supply of commercially prepared reagents and biological products.

d) A specification of the procedures necessary for the reliable identification of patient specimens and materials in an automated laboratory.

The working group conducted onsite visits to the Georgetown University Hospital (where a positive patient and sample identity system is under development), the National Bureau of Standards (where considerable work has been done on the development of Standard Reference Materials and Standard Reference Methods), and the National Library of Medicine to explore possibilities of using the Medlars and other retrieval systems in the formulation of a bibliography.

Participants in the Bethesda Meeting identified other projects related to Automated Clinical Labs requiring further development:

a) Development of automated analytical equipment, including consideration of the best end-point detecting systems (e.g., colorimetry, spectrophotometry, flame photometry, automic absorption, flurimetry, potentiometry and gas/liquid chromotography).

b) Development of entirely new analytical methods for automated systems, and seek answers to the questions -- should these precede and dictate equipment development, or be made suitable for use with existing and/or new analytical systems.

c) Development of computer software for laboratory data

processing, control of analytical methods, and identification of abnormal results; and discussion of the need to develop or adapt computer hardware specifically for laboratory purposes.

d) Definition of normal values for clinical chemistry laboratory tests--by age, sex, race, geographic locality and other special categories.

e) Determination of the extent to which automated clinical laboratories can be centralized, wholly or in part; matters affecting unit cost, manpower requirements, and acceptable delay in reporting results.

f) The development of appropriate sets of profile tests suitable for the early detection of various disease processes.

g) Development of universal criteria for transportation and preservation of biological specimens to be sent to clinical laboratories.

h) Development of appropriate uniform standards for training in the clinical laboratory sciences and establishment of mechanisms by which more effective and sustained exchanges of experience in laboratory automation could be accomplished.

i) Identification of fields where pure research and/or research and development efforts should be stimulated

to advance the clinical laboratory sciences.

j) Expansion of standard reference materials and reference methods program on an international basis.

k) Development of specifications for an international clinical laboratory communications language.

l) Consideration of a systems approach to the clinical laboratory for greater or maximum efficiency and quality.

m) Development of specifications regarding the maximum and minimum information needed for an adequate laboratory report.

n) Development of criteria for the prevention of pollution by the clinical laboratory.

o) Assessment of laboratory proficiency on a national and/or international basis.

p) Convening of a round table discussion concerning parallel analysis versus serial analysis in the clinical chemistry laboratory.

With the conclusion of all agenda items the working group on automated clinical laboratories was adjourned.

IV. General Conclusions

The Automated Clinical Laboratories project reached two general conclusions:

1. Much work still needs to be done to improve the overall performance of the clinical laboratory and provide meaningful data to the using physician. The volume of testing is increasing rapidly and yet standardized methods for assuring the accuracy, reliability and cost effectiveness of laboratory automation are not generally available.
2. Since strong commercial and industrial interest is being directed to this field, it is realistic to expect development of a modular automated clinical laboratory system that could benefit all sizes of hospitals, in part through installation of regional networks. Experts conversant in the field of clinical laboratory operations should exchange ideas and provide information and advice to the commercial sector in order that laboratory instrumentation achieve some degree of standardization with regard to electrical demands, safety features, read-out devices and computer compatibility.

V. Recommendations for International Cooperation

The project group placed highest priority on the two following recommendations:

1) The development of a standard reference method for iron determinations. Appendix A contains the proposal drawn up by the working group for an iron determinations reference method.

2) Endorsement of the recommendation that the National Library of Medicine be requested to produce a Reviewing Bibliography on the Automation of Clinical Laboratories. The proposal is attached at Appendix B.

VI. Follow-Up Activities

The group recommends that the working group should meet, in the follow-up stages of this project, if necessary, to consider and revise recommendations made for future work, as required by new technical developments.

Standard Reference Method

RECOMMENDATION

It is recommended by the Working Group on Automation of Clinical Laboratories of the CCMS that a pilot study be initiated to assess the impact of a Standard Reference Method on international clinical laboratory practice.

A. Introduction and Background

The concept of quality control has been recognized for years by analytical chemists as essential to meaningful measurement. The formal extension of this practice to clinical chemistry in the form of Standard Reference Materials (SRM's) began with a paper entitled "Standards: Philosophy and Standards" (unpublished) presented at the 1966 national meeting of the American Association of Clinical Chemists, as part of a symposium on laboratory standards. This was presented by W. Wayne Meinke of the National Bureau of Standards (NBS).

In 1968, an article entitled 'Measurement and Standard Reference Materials in Clinical Chemistry" by T. W. Mears and D.S. Young was published simultaneously in Clinical Chemistry (vol. 14, 929, 1968) and in the American Journal of Clinical Pathology (vol. 59, 411, 1968) in a cooperative action to stimulate the use of SRM's.

In June 1969, the Journal of Clinical Chemistry announced an agreement between the National Institute of General Medical Sciences (NIGMS) and the NBS, by which NIGMS would provide funds for the production of

Standard Reference Materials at the NBS for a five year period. Since the inauguration of this cooperative effort 18 SRM's have been produced.

The Role of Standard Reference Materials

By definition, a Standard Reference Material is a well-characterized material whose property or properties have been measured and certified to be known on the basis of accuracy (1). The purity of materials is an important determinant in measurement, although it is not easily classified. Purity is necessary for accurate analysis but should not be the factor limiting the accuracy of results. A standard solution should be known with greater certainty than is required in the analysis of a sample, so that errors in concentration have a negligible effect on the total analytical error. Standard Reference Materials should serve a central role in obtaining accurate results. Only continued excellence in the practice of clinical chemistry can assure that maximum benefit will be derived from their use. As early diagnosis and therapy become more dependent upon the detection of small changes in concentration, there is a corresponding need for greater reliability of measurement. The avialability and intelligent use of SRM's will undoubtedly increase the precision and accuracy of the chemical measurements performed in the nation's clinical laboratories. There is,

however, at least one other ingredient necessary in order to assure compatability (2) in measurements performed by clinical laboratories - the standard reference method (3). Without the use of SRM's, the laboratory can, with careful work, assure precision (4) of their methods, but not accuracy.

B. Definitions

(1). Accuracy: The results of a clinical laboratory test must be related to the "true" value. In chemistry this is taken to mean that the mean of a number of determinations approaches the "true" value. Accuracy is concerned with systematic biases on errors.

(2). Compatability in measurement: The ability to get along well together. In the clinical chemistry laboratory this means a mechanism whereby results obtained in any one laboratory are meaningful across time and distance - a real requirement for the doctors and his patient. It can be shown that if results are based on accuracy then compatability automatically ensues.

(3). Standard Reference Method: A method of analysis on a test that has been demonstrated to produce accurate results.

(4). Precision: Precision is related to the extent the measuring process is reproducible and is concerned with random errors - thus a laboratory can be very precise in repetitive measurements and still not be "on target."

C. Professional Community Contribution

The development of reference methods is moving ahead in the United States on a limited basis with the guidance and contribution of the professional scientific and industrial community. For example, on the

basis of information gained by the NBS in the development of a Calcium Reference Method, studies have been started in this country towards reference methods and materials for lead in blood, serum electrolytes (Na, K, cl, Mg, and Li), serum glucose and serum uric acid by various professional groups. The basic guidelines for such efforts were developed by the NBS which dinates the many groups contributing to the total effort.

Accuracy in a measurement system propagates or assures compatability in a measurement infrastructure. Accuracy is obtained and made transferable where there is:

1. agreement on the units of measurement,
2. a standard reference material available in an appropriate surrogate matrix,
3. a reference method of analysis and test.

D. The Problem

There are a number of national efforts underway to regulate the operation of clinical laboratories in the NATO Nations. Most of these efforts depend ultimately on the accuracy and precision of the measurement used for control. The need for international agreement in clinical test results based on true values is apparent because the exchange of materials (diagnostic products) between various nations is great, and the use by clinicians of diagnostic criteria is international, as well as national. It is the feeling of the CCMS Working Group on Automation that a pilot study to establish a reference method would be of considerable value internationally by setting a scientific, international basis for accuracy in at least one method.

The area chosen for this pilot attempt is iron (Fe) in biological materials. Its clinical importance is apparent to everyone. The problems to be encountered in such a study are not trivial, and the contribution of international experts should serve to further define problems which still require definition. It is contemplated that the proposed study will be conducted along two lines. Initially the problem of accurately measuring iron and relating this to a true value (base-line method) by isotope dilution-mass spectrometry will be solved. An absolute accuracy for iron of better than 0.25 percent can be assessed by this base-line method. Secondly, the application of the base-line method of analysis to a candidate method for biological materials such as serum and red blood cells (hemoglobin) will be attacked. Since iron exists in biological materials in different forms, such as inorganic (Fe^{++} and Fe^{+++}), protein bound (transferrin) and complexed to phosphates and porphyrins, the group proposes that the measurement of iron in its various biological forms be included in the study, after the basic iron analysis method has been developed.

E. The Solution

It is proposed that the NBS be commissioned to serve as the coordinating group for this pilot project. The NBS has indicated its willingness to serve in this capacity. The Institute of Materials Research of the NBS has the expertise and insight necessary to perform the project in a careful and detailed manner. This group can draw on their previous experiences with such studies carried out in this country, e.g. Standard Reference Method for Calcium in Biological Fluids (completed) and the Lead Study (in progress). Briefly, the effect of the calcium study

on the participating laboratories was to reduce the analytical error in the detection of serum calcium in ten participating laboratories from an average fifteen percent to less than two percent in eight of the laboratories, and to less than one percent in two laboratories. During the study five of the original laboratories were forced to withdraw from the study owing to the pressure of service responsibilities. Three major components are required for the organization of a proposed pilot study: (1) A group of four to eight scientists who are leaders in the particular methodology under study, to define the problem, set the accuracy goal for the reference method, recommend and help recruit the cooperating laboratories, and choose the candidate method. (2) A laboratory to coordinate the ongoing work - set schedules, obtain and distribute samples, protocol, data sheets, help develop protocol, gather and analyze data, develop and prove a base-line method. (3) Eight to twelve cooperating laboratories to perform the actual laboratory tests on the supplied sample using the developed protocol.

On the international scale, the recruitment of the experts and cooperating laboratories must be accomplished by a group having international status, and who are well recognized by the international professional community. The CCMS is an ideal organization for this purpose. We envisage the members of the Working Group on Automation in Clinical Laboratories to be the nucleus of the group of scientists. We have had assurance that they are willing to recruit cooperating laboratories from six to eight countries assuring the international cooperative effort necessary for success.

The first set of exercises will be aimed at the development of a reference method for total iron in a biological material (probably serum). However, other problems of iron analysis will remain, e.g., protein-bound iron (transferrin, hemoglobin). Therefore, additional exercises will be required to transfer the accuracy on the basic reference method to these specific analytical problems.

It is not the intent of CCMS to set up the mechanism to affect daily, routine methodology, except through the publication of the final reference method.

The design of this proposed pilot study consists of four phases as shown in Figure I (attached).

F. Duration of Project and Cost Estimate

Based on similar previous work performed by the NBS, the project would most likely require one year for completion and an allocation of $200,000 to the NBS. This money would cover the costs involved in development and issuance of the SRM for Iron and for the coordination of activities at the national and international level.

ACTIVITY	RESPONSIBLE GROUP		
	EXPERTS	NBS	COOP. CLIN. LA
Phase I Planning and Organization			
a) Define goals and problems and adopt overall strategy	x	x	
b) Choose candidate method	x		
c) Set accuracy goals	x		
d) Choose and/or recruit cooperating labs	x		
Phase II Preliminary Operations			
a) Develop and prove base-line method		x	
b) Develop and issue Standard Reference Material (Fe)		x	
c) Develop statistical design	x	x	
d) Develop protocol for candidate reference method	x	x	
e) Coordination activities - explanation of protocol	x	x	
f) Prepare or obtain test samples		x	
g) Analyze test samples using baseline method		x	
Phase III			
a) Distribute samples and protocol		x	
b) Perform laboratory work		(x)	x
c) Collect and analyze data		x	
d) Revise protocol		x	
e) Repeat II 6, 7 and III 1-4			
Phase IV			
a) Accuracy assessed	x	x	x
b) Publication of results	x	(x) internal	
c) Implementation through Associations, Societies, etc.	x		

FIGURE

Estimated Cost of Developing a Standard Reference Method

National Bureau of Standards

$200,000
"Develop reference method for iron"
Cooperation with CCMS

Task I

To develop and produce iron Standard Reference.

1/2 manyear	$ 30,000

Task II

Develop and test method for assuring the accuracy of the base-line method to be used. Isotope dilution-mass-spectrometry: at the 0.2 percent absolute accuracy level

1 manyear effort	65,000

Task III

Produce samples of serum and/or blood at various levels of iron concentration; five rounds or exercises anticipated; in cooperation with CDC.

	20,000

Task IV

Cooperative analytical work at NBS using manpower and facilities of the Analytical Chemistry Division: NBS will serve as one of the cooperating laboratories.

2/3 manyear	40,000

Task V

Coordination of all the above activity by assigned senior scientists at NBS: to include statistical design and analysis of data

1/4 manyear

Coordination to run net work, collect and reduce data, provide uniform flow, etc.

1/2 manyear	45,000
TOTAL	$200,000

Reproduced from best available copy.

Library Searches

Library Searches

The clinical laboratory is becoming increaslingly dependent upon developments in instrumentation, and it is one of the areas of medicine where the application of computer techniques has progressed beyond research and development, to practical service uses. Although these statements are most clearly related to the laboratory practice of clinical chemistry and haematology, they are now also applicable to microbiology, histopathology, immunology, and to the clinical field, as in computer assisted diagnoses.

These developments in automation are expensive, and financial resources may be misallocated if decisions are reached on the basis of inadequate knowledge. It is becoming increasingly important in the field of automation and computers, to be able to draw on published accounts of practical experience (both successes and failures) so that governmental departments and laboratory directors are properly informed when planning the future provision of laboratory services. This requires efficient access to scientific literature rather than reliance on commercial publicity.

National Library of Medicine. On 14th November, 1973, the Committee visited the National Library of Medicine, where a most informative program (copy attached) had been arranged. After the formal part of the session, the Committee was taken on a tour of the Library by Dr. Norman Shumway. After reviewing the many interesting features of this visit, the Committee concluded that the facilities offered by the data base and literature search

techniques available at the Library of Medicine could make an important contribution to the information system facing the Committee. The Committee, therefore, recommends that there be:

1) A Recurring Bibliography on the Automation of Clinical Laboratories established,
2) A complete review of the Medical Subject Headings in the field of Automation of Clinical Laboratories.

These recommendations will be briefly discussed, and suggestions will be made relating to their implementation.

Recurring Bibliography on the Automation of Clinical Laboratories

The National Library of Medicine produces, periodically, lists of journal articles in specialized fields of medicine. These bibliographies are derived from searches of the MEDLARS data base, carried out on the basis of a search strategy drawn up by a number of experts (6-10 would seem an appropriate size) in the designated field. These experts work with search analysts on the Library's staff to produce, refine and, thereafter, review the search strategy for that particular bibliography.

The National Library of Medicine cooperates in the development of a bibliography with an appropriate professional medical organization. The bibliographic lists, once there content has been agreed upon, are printed and distributed by non-profit professional bodies or government agencies. For obvious reasons, the distributing bodies are all in the U.S.A., but it should be emphasized that the bibliographies are available on a world-wide basis.

We believe that a bibliography on the Automation of Clinical Laboratories would bring together information on recently published literature required for better planning, operation of automatic equipment and computers, and for better use of data generated by clinical laboratories.

Assuming that our first recommendation is accepted, we suggest that the American Association of Clinical Chemists be invited to be the professional body to work with the National Library of Medicine in the production of the bibliography on the Automation of Clinical Laboratories. We believe however, that the group of experts responsible for drawing up the search strategy would need to be more broadly based to take into account the fact that the bibliography is to cover all aspects of laboratory automation, not just clinical chemistry. We suggest therefore, that the composition of the group of experts allow for:

1) Cross-membership with the group set up by the International Union of Pure and Applied Chemistry (IUPAC) to consider automation and related nomenclature,

2) Representation from other branches of Pathology. This might be achieved, for instance, by inviting the American Society of Clinical Pathologists to nominate two representatives.

We also suggest that the panel of experts include one or two representatives from countries other than the United States, so as to broaden the area from which advice was being drawn.

Review of the Medical Subject Headings in the field of Automation of Clinical Laboratories

We have been concerned, on the basis of our examination of several MEDLARS searches in the field of laboratory automation and computers, about the amount of irrelevant material in the print-outs. We recognize that some of the improvements offered by MEDLARS 2, particularly, the introduction of MEDLINE, should result in a lessening of this problem. However, we suggest that the authors of scientific articles in this field, and the professional indexers who help to prepare the MEDLARS data base, would be greatly assisted by a review of the relevant parts of the MeSH (Medical Subject Headings) vocabularly. Authors, in particular, might be helped by the publication of explanatory definitions for some of the more widely used key words.

If this second recommendation is accepted, we believe it would have practical application in the compilation of the Recurring Bibliography on the Automation of Clinical Laboratories, proposed as our first recommendation. It would again be necessary to call upon the services of a panel of experts, and the same panel might be able to fulfill both functions. However, as far as the review of MeSH vocabularly is concerned, we believe that a small panel of 6-10 experts might find itself unable to perform the task without consulting more widely.

We have, in the limited time available to us, given preliminary consideration to the terms to be included following any review of MeSH headings in the field of laboratory automation. This has forcibly brought to our attention the difficulties inherent in this task, and the attached lists of terms

should only be regarded as preliminary suggestions, and as indications of difficulties likely to be encountered.

In drawing up the attached lists, we have not attempted to review the entries already contained in the MeSH vocabulary, nor have we attached hierarchical levels of importance. We are aware that important terms are missing, but we are also aware that the lists contain examples of different terms used, at present, by two or more "experts" which, might appear redundant - hence, the need for definitions in some instances.

We suggest that the group of experts that has set the task of reviewing MeSH entries in the field of automation might be widened to include professional indexers. This might help to reduce the likelihood of redundancy of terminology, and the extent of irrelevancy in the future MEDLARS and MEDLINE searches. The group of experts should also include a representative of the IUPAC group on automation and related nomenclature.

Analytical terms in clinical laboratory work

Analytical error
Analyzer console
Autoanalyzer
Automated analysis
Automated chemistry
Automatic
Calibration
Calibration serum
Carry over
Continuous flow analysis
Control serum
Control specimen
Cumulative record
Cumulative report
Discrete analysis
Discrete analyzer
Drift
Drift correction
Drug Interference
Fast analyzer
GeMSAEC
High speed analyzer
Identification
Interaction
Laboratory automation
Laboratory data
Laboratory instruments
Laboratory mechanisation
Laboratory record
Laboratory report
Multi-channel analyzer
Parallel analyzer
Patient identification
Patient registration
Registration number
Report from
Request form
Sample identification
Specimen identification

Computer terms in clinical laboratory work

Analogue interface
Back-up system
Chart recorder
Computer, analogue
Computer-analyzer interface
Computer-assisted
Computer control
Computer, digital
Computer interface
Computer program
Computer stimulation
Continuous monitoring
Curve fitting
Data acquisition
Data capture
Data handling
Data Jink
Data Jogging
Data management
Data preparation
Data storage
Data terminate
Fortran (an an example of language)
Interactive device
Laboratory computer
Off-line
On-line
On-line computing
On-line monitoring
Pattern recognition
Peak analysis
Peak characteristics
Peak recognition
Process control
Program
Real-time
Real-time computing
Simulation

Uses of clinical laboratory data collected on a large scale

Admission profile
Age/sex distribution
Biochemical profile
Biochemical screening
Case-finding survey
Control chart
Cost-effectiveness
Cusum
Daily mean
Grouped tests
Laboratory profile
Laboratory screening
Mass screening
Multiphasic screening
Multiple analysis
Multiple chemical screening
Normality
Normal range
Normal values
Profile
Quality control
Reference values
Statistical evaluation

v.

COMMITTEE ON THE CHALLENGES OF MODERN SOCIETY

NATO OTAN

CDSM CCMS

FINAL REPORT

EMERGENCY MEDICAL SERVICES PROJECT

ADVANCED HEALTH CARE PILOT STUDY

OCTOBER 1975

I. Origin of the Project

The Emergency Medical Services project was originally part of the CCMS Road Safety Pilot Study, with Italy acting as lead country. In the countries of the Alliance, the number of accidents and other emergency situations requiring prompt medical treatment was rising every year. It was believed that significant reductions in death and a considerable lessening of the consequence of injuries could be accomplished through improved Emergency Medical Services (EMS).

The first phase of the EMS project began in August 1971, with an initial meeting to ascertain the scope and nature of EMS practices in the different countries. Italy developed a basic EMS questionnaire, used to compile data and basic EMS response in seven broad areas of the system. Canada, Denmark, the Federal Republic of Germany, France, Italy, the Netherlands, and the United States completed the questionnaire. In February 1972 a working session was held in Brussels and after reviewing the results of the questionnaire, the delegates formulated a small supplementary questionnaire of nineteen elements of special interest. The results from this second questionnaire led to an expanded concept of an evaluation methodology which may be used at the national level. This methodology was tested on a limited basis at several locations in Europe and the United States and was made a special action item for the EMS project.

II. Change of Project Scope

In early 1972, with the beginning of the Advanced Health Care Pilot Study, a second Emergency Medical Services (EMS) project was activated with Italy and Portugal being the co-lead countries. While the activity under the Road Safety program was primarily concerned with response to aid traffic accident victims, the new EMS effort dealt with all requests for urgent medical treatment such as heart attacks, burns, industrial and home accidents and types of sudden illnesses. Very close liaison was established between the two projects to prevent duplication of effort and to insure transition of EMS activity upon completion of the Road Safety Pilot study into the more general EMS effort under the Advanced Health Care Pilot Study.

In this second CCMS/EMS project came the major impetus to complete and apply the EMS evaluation methodology in all participating nations. At each meeting, experts agreed that this was a very valuable tool to assess and evaluate EMS activities, but that it should be adopted to local country/state needs and capabilities. Pending completion of this effort in each country, the results will be collected and disseminated to each participating country.

The scope of the second CCMS/EMS project necessarily evolved from one with a narrow focus on a highly developed and unique program to an effort with a broader view of the roles which various institutions and organizations play in the delivery of urgent medical care. Project members specifically identified the four major components of an EMS system as Detection, Notification, Transportation and Treatment. Further, members studied pre-system and system activity. The principal recommendations considered by the project delegates centered around the acceptance of the EMS assessment methodology as a means to analyze all EMS activity in the delegates' country as well as

other participating nations. There is growing interest at the present time to have this report modified/updated on an annual basis. In this way, the most advanced techniques, procedures and information would be made available on emergency medical training, EMS communications, hospital emergency departments, transportation, and planning community-based EMS systems. This final EMS report concludes project activity under the Advanced Health Care Pilot Study but sets the stage for continuous international cooperation on an important health care issue.

III. Summary of Project Meetings

The following are brief summaries of the Advanced Health Care/EMS meetings held from 1972-1975:

Meeting held at San Francisco - October 16-19, 1972

Eight delegations were present at the initial EMS meeting: Italy--lead country, Belgium, Canada, the Federal Republic of Germany, France, Portugal, United Kingdom, and the United States. Consensus was reached that project guidelines included the following:

- Consequences of medical emergencies are of such magnitude that they place very severe human, social, and economic drains upon all nations.
- Medical emergencies are multifaceted and include physical, physiological, psychiatric, or a mixture of each.
- All efforts toward the reduction of medical emergencies should be accomplished within the already existing health and safety resources and program efforts.
- Commonalities of problems and methods of solution provide the rationale and reason for vigorous voluntary actions by participating nations.

Some of the directions that these guidelines cover are:

- Organization methods and problems
- Manpower
- Operational procedures and equipment
- Data collection; Analysis and Dissemination
- Information Needs

Agreement was reached that a small working group arrange and hold a work group conference in Europe in mid-1973.

Work Conference - Lisbon, Portugal March 15-17, 1973

This work conference was held to plan future activities of the Emergency Medical Services Project and in particular the scheduling of an international work conference of established technical experts in the various aspects of medical emergencies. The work conference membership was from five countries: the Federal Republic of Germany, Italy, Portugal, United Kingdom, and the United States. It was decided that the international conference would be held in the Federal Republic of Germany, in late Setpember or October 1973. (This was subsequently rescheduled to Rome in April 1974.) A conference committee was selected to plan and monitor the details of the proposed meeting. It was further determined that in addition to discussions on issues identified in San Francisco, special sessions would be devoted to the pre-hospital system and hospital systems.

Work Conference - Rome, Italy April 22-24, 1974

The second working conference met in Rome and was attended by ten countries. A comprehensive list of conslusions and recommendations relating to detection, notification, transportation and treatment, was prepared for detailed discussion at the next work conference scheduled for Munich, FRG, during May 1974.

In the interim, the final report of the Road Safety Pilot study/EMS project was presented to the CCMS Fall Plenary held in Brussels in 1974.

The recommendations concerning Emergency Medical Services focused on the application of an assessment methodology for the evaluation of EMS whether it be local, regional, or state system. Road Safety participants

suggested additional agenda items for discussion at the EMS meeting in Munich, Germany, in May 1975.

Discussions at the Fall 1974 Plenary revealed that recommendations would be made to the Munich Conference concerning the establishment of bilateral and multi-lateral exchanges in selected EMS activities and the suggestion that conferences of experts become an annual event. It was reaffirmed that the final report would be ready for circulation at the Plenary meeting in October 1975.

International EMS Conference, Munich, Germany, May 20-24, 1975

Delegates from 15 countries and the International Red Cross met in Munich, Germany, from May 20-24, 1975, in the final meeting of the Emergency Medical Services Project of the CCMS Advanced Health Care Pilot Study.

The meeting was the largest held by CCMS experts and was attended by all but one of the NATO countries, Turkey.

The Munich Conference was hosted by the Federal Republic of Germany's Ministry of Youth, Family and Health, and the German Automobile Club (ADAC) at ADAC Headquarters. The conference chairmen were: Dr. William R. Gemma, (USA) representing the Chairman of the Advanced Health Care Pilot Study; and the representatives of the co-lead countries Professor Dr. Rosa D'Andrea (Italy) and Professor Dr. Eduardo do Amaral (Portugal).

After presentation of this final report, EMS enters its follow-up stage. Follow-up conferences are scheduled for Washington (USA) in May 1976, and Montpellier (France) in September 1977.

From the Munich international EMS conference the following conclusions were unamimously agreed upon by the delegates. These conclusions will be applied to the fullest extent possible in each participating nation.

A. Detection (Pre-System Action)

1. Detection is the recognition of an unforeseen event.

2. It includes the assessment of the magnitude and nature of the emergency (Numbers involved, location and type of treatment).

3. The general public must be educated on first aid treatment and how to use the EMS system.

4. Detection is an ongoing problem and limited available experience exists.

B. Notification and Coordination

1. Notification and coordination involve three items:

   a) Call
   b) Communication with ambulance services
   c) Communication with hospital.

2. All calls for emergency care should be reported via one telephone number.

3. Every citizen has a human right to participation in an ambulance system.

4. The ambulance service or services must be controlled by appropriate authorities, and coordinated with organizations that are actively involved in health care.

5. Ambulances must be appropriately equipped with communications and emergency equipment.

C. Organization of EMS Systems

1. Emergency Medical Services is an important function of the Department of Health.

2. Physicians must actively participate in the organization and performance of the EMS system.

3. Training of the paramedical professionals must be conducted by qualified and experienced physicians.

4. Emergency services must be regionalized in order to provide comprehensive and useful care. The Franch S.A.M.U. concept is recognized as a good example.

D. Emergency Medical Treatment

1. The main objective of emergency medical treatment is to increase the chance of survival and minimize the effects of injury.

2. Emergency treatment may be provided by persons with appropriate training, such as:

   - laymen,

   - public officers, firemen, members of the Red Cross and other humanitarian organizations,

   - emergency medical technicians and emergency unit nurses,

   - isolated EMS personnel, and

   - physicians.

3. Training of the Emergency Medical Technician should be recognized at various levels - e.g., basic, intermediate and advanced.

4. Refresher courses must be part of the EMS system.

IV. Principal Conclusions of the EMS Project

The application of basic and advanced life support systems can play an important role in lowering the number of deaths, disabilities and long-term suffering resulting from accidents, injuries and sudden illnesses. Knowledge and expertise does exist in many countries to apply regionalized emergency medical service systems to help solve important health care issues involving EMS. However, in other countries there still exist fragmented, uncoordinated systems for the delivery of urgent medical care to the population. Emphasis is usually on training of medical personnel, upgrading of transportation vehicles and emergency department equipment, communications, and training of the general public on how to use the EMS system. Whichever of these objectives is the priority issue, its impact on the other objectives must also be taken into consideration.

The assessment methodology for evaluating a country, state, or local EMS program serves as a tool for the health planner or administrator to collect data on his program and to address priorities for improving or expanding EMS capabilities. This assessment methodology may be used by each country in describing its own EMS programs, as well as a method to learn what is successfully being accomplished in other nations that could be applied to its own local situation.

There is also a continuing need for the exchange of ideas and information on a recurring basis to improve accessibility and availability of emergency medical services throughout the world. As the results of research programs are published and advanced operational EMS techniques and procedures are applied, the knowledge and experiences can be shared through this international

cooperation. The establishment of an international mechanism such as an EMS forum can provide the means to bring government officials and EMS experts together in order to exchange ideas and make recommendations to upgrade EMS systems throughout the world.

V. Recommendations for National Action Programs

The following recommendations for domestic cooperation in planning and implementing community and regional EMS systems were synthesized from the activities of the Road Safety Pilot Study and _____ expanded by the activities of the Advanced Health Care Pilot Study.

1. That each nation continue to collect and disseminate data on its EMS response system to aid victims of accidents, injuries and sudden illness in both urban and rural areas.

2. That each nation use the EMS assessment methodology developed under the Road Safety Pilot Study as a means to plan, evaluate, and publicize their EMS programs.

3. That each nation continue to develop EMS systems, applying the findings and recommendations of the EMS Project of the CCMS Advanced Health Care Pilot Study, so as to reduce the number of deaths, disabilities and suffering of persons involved in accidents and sudden illnesses.

4. That each nation develop expanded training programs for all persons involved in the delivery of this urgent medical care.

5. That each nation develop suitable educational programs for the general public to recognize medical problems and the proper use of the EMS system.

6. That each nation assess local and regionalized EMS needs against the benefits and costs of present and expanded EMS practices. Special attention should be devoted to basic and advanced life support systems on a regionalized basis, using sophisticated transportation and communications, and linking ambulance services to appropriate critical care centers.

7. That each nation develop and implement appropriate national standards of performance which may be applied at Federal, state and local levels of activity.

8. That each nation establish an organization of EMS at suitable levels of health authority to provide guidelines for proper functioning of EMS programs.

VI. Recommendations for International Cooperation

The following recommendations for international cooperation in planning and implementing community and regionalized EMS systems resulted from activities of the Road Safety Pilot Study and were expanded by the Advanced Health Care study.

1. That interested nations agree to mutual and continual exchange of experiences in application of techniques and procedures in applying basic and advanced life support systems.

2. That interested nations cooperate in the application of and the continual use of the evaluation methodology developed by the Road Safety Pilot Study and adopt common standards for such evaluation.

3. That interested nations establish an international exchange program for EMS experts in order to advance the state-of-the-art and to promote interest in the field of emergency medicine.

4. That interested nations cooperate in developing EMS standardization of terms and procedures such as:

   - a universal EMS language
   - a universal symbol to designate all EMS vehicles, equipment and emergency reception departments in hospitals. The conference recommended that the 'Star of Life' be the universal symbol.
   - standards for basic and advanced levels of training for all EMS personnel responsible for providing urgent medical treatment.
   - standards for training of nurses and physicians in emergency medicine.
   - standards for performance and configuration of medical equipment for vehicles (air, sea, and ground), mobile intensive care units and hospital emergency departments.
   - agreed national and international radio frequencies for transmission of voice and physiologic data within the EMS communications system.

5. That interested nations cooperate in the investigation of priority EMS issues such as:

   - early detection and working systems for the general public and providers of EMS.
   - proper delivery of EMS on a regionalized basis establishing appropriate critical care centers such as:

acute cardiac
burns
drug overdose
alcohol detoxification
spinal cord injury
high risk infant
poison control
psychiatric
shock/trauma

- cost/benefit of various alternative EMS delivery systems.

VII. Follow-up Activity

At the Munich Conference, delegations from the fifteen participating countries and the International League of Red Cross societies agreed to establish a mechanism to continue the important international and domestic work already in progress in the field of emergency medical service and to take advantage of new technology and innovations as they develop. It was decided that the best method of continuing the work of the Emergency Medical Services Project was to create an International Forum for EMS, composed of experts and government officials from all over the world. A meeting would be held in the near future to organize this International Forum to meet the objectives as follows:

1. The Forum should consist of contact persons from each of the countries who participated in the Munich Conference.

2. If other contact persons are not designated by their countries, the delegates who attended the Munich Conference will continue as contact persons.

3. The United States will host the next EMS Conference in May 1976, in conjunction with the Bicentennial of the U.S.A. The U.S. Department of Health, Education, and Welfare has selected this conference as an official Bicentennial project.

4. Follow-up meetings have been recommended for Montpellier, France, in September of 1977, and Oslo, Norway in July 1978.

5. The expert Forum will explore possibilities of establishing a link with an appropriate international health-related organization.

REPORT ON SYSTEMATIC ASSESSMENT OF HEALTH SERVICES

Origin of Project

At the organizing meeting of the Expert Committee on Advanced Health Care Delivery Systems held in Florence, Italy, October 11 and 12, 1971, the Canadian delegation suggested that a project be included on surveillance methodology, which was described as follows:

> Prepaid medical care, whether financed through private or public agencies, is leading to the use of surveillance or monitoring systems designed to reflect how well the prepaid medical care plan is working. Since 80% of health costs, at least in Canada and the United States, are generated by physician's decisions, it may be of interest to participating countries to exchange information on how the practice of medicine is monitored under different prepaid public and private medical care plans.

More specifically, Canada proposed a study of the methodology for the systematic review of physician decisions through professional peer review mechanisms. Measures were being sought to keep costs under control, within reasonable and predictable limits. There continued to be need for a surveillance methodology, principally for monitoring the practice of medicine, but also the rate of demand by the public and the cost of administering the programs by government agencies.

This project,as proposed by the Canadian delegation, was enthusiastically endorsed. The French delegation mentioned the measures the French government had recently taken in this field. The Belgian delegate suggested that consideration should also be given to the patterns of consumer use of medical care and administrative structures.

Canada was designated lead country for the new project, "Systematic Assessment of Health Services." A conference was sponsored by the United States in San Francisco in October, 1972, for the purpose of developing specific objectives and work plans. Delegates agreed that the project's goal should be:

> To improve methods for describing and assessing the economics, accessibility and quality of personal health services in order to assure people of the full benefits of medical science, and to help fulfill the humanitarian, social and scientific aspirations of physicians and health personnel.

1. Improving morbidity statistics for purposes of evaluating and planning.

2. Advancing technologic processes needed to achieve the purposes of the project -- i.e., data collection and analysis.

3. Providing information needed by physicians to assess the services they are providing.

4. Increasing physicians' understanding of the economic implications of their actions.

Priorities were to be given to methods for evaluating the appropriateness of utilization of health services by the

public, and the appropriateness and quality of services provided.

It was agreed that work programs in the project would include exchange visits of consultants and technical experts; study visits to existing projects; exchanges of experience, data and information with respect to promising developments in each country; initiation of demonstration projects; and collaborative evaluation.

Doctor D. F. Marcellus of the Canadian Department of Health and Welfare was named as the technical expert for the lead country on this project. Other countries which agreed to participate were Belgium, France, Federal Republic of Germany, The Netherlands, Portugal and the United States.

Representatives of the participating countries next met in Sesimbra, Portugal, in February 1973. There it was agreed that Canada and the United States should develop a proposal for a survey tour of existing techniques of monitoring health services for costs and quality in the United States and Canada. In addition to itinerary, the proposal was to contain a detailed outline of what was to be learned by an examination of these activities. The results of the survey were to be the basis for a preliminary report to CCMS on Systematic Assessment. The survey and the deliberations of

the experts from each participating country were to result in a report which would:

1. Document existing methods of systematic assessment of health services.
2. Evaluate the strengths and weaknesses of the various methods.
3. Analyze the various forms of systematic assessment in the context of each country's medical care system with emphasis on the relationship between medical and administrative responsibilities in health services.

In March, 1974, ten delegates from the five participating countries conducted a study tour of existing programs of systematic assessment of health services in the United States and Canada. In the United States, the survey included the recently legislated program establishing Professional Standards Review Organizations nationwide. The survey also included a visit to the Hospital Utilization Plan of Western Pennsylvania, the Blue Cross Association in Chicago, and the Utah Professional Review Organization in Salt Lake City. This tour provided the visitors with information and perspective on the new federal program of systematic assessment, a voluntary regional system, monitoring performed by a not-for-profit insurance intermediary, and a voluntary program initiated entirely by physicians.

In Canada, visits were made to British Columbia, Saskatchewan,

and Nova Scotia and to the Department of Health and Welfare in Ottawa. Considerable interest was shown in the areas of constitutional responsibilities, insured benefits, funding of programs, remuneration of purveyors, utilization of services and maintenance of standards of health care. A summary of the observations and interpretations in the two countries was prepared by Doctor Marcellus and is attached. During these visits, there was an opportunity for delegates to compare the North American systems with those in their own countries, and the survey served to identify the programs and personnel through which future liaison could be established for the exchange of information. It was generally recognized that segments of the programs could be used in another country but only with modifications adapted to the health care system of that country.

Summary and Comment

In the space of two and one-half years the majority of countries that expressed initial interest in systematic assessment of health services concluded a series of meetings, including a survey tour of major programs in the United States and Canada. The resulting document is a useful source of reference material with respect to individuals and activities in both Canada and the United States. As is to be expected, differences in the organization and financing of health services in the participating countries make it unlikely that any one method can be applied universally. Nonetheless, the common and continual

problem of unexpectedly large increases in total expenditures for health services make the CCMS project in systematic assessment one of the most important of the pilot study.

Recommendations

Systematic assessment of health services is essential to provide the best quality health care at the lowest possible cost to recipients of medical services. Therefore, to refine and expand the techniques of such assessment, the participants in the project recommend:

1. Development of an international common vocabulary and terms of reference, which will greatly enhance the exchange of information in all areas of advanced health care delivery systems.
2. Continuation of information exchange on a bilateral basis between countries which have found that their institutional structures and needs are similar, and which can best seek common solutions to common problems.
3. Creation of an expert committee which would develop the vocabulary referred to above, and which would facilitate exchange on a multilateral basis of information applicable to all participants, with necessary modification undertaken by each country.
4. Initiation of contacts between this expert committee and an international health-oriented organization,

with a view toward establishment of the committee as an advisory group on systematic assessment to such an organization.

5. Dissemination of all information already collected and of all future findings to all NATO countries, the USSR and Eastern European countries, interested international organizations, and others for their information and use.

6. Evaluation of implementation of these recommendations at least until 1978 through pilot country reports to the CCMS Fall Plenaries and NAC, as established by CCMS Follow-Up procedures.